IN THE SPECIFICATION:

Please amend the following paragraphs as indicated:

[0016] Fig. 1 illustrates a print cartridge (100), such as a laser print cartridge, according to one exemplary embodiment. As shown in Fig. 1, the print cartridge (100) may generally include a developer unit (105), an organic photo conductor (OPC) drum (110), and a cleaning unit (115). The developer unit (105) transfers a marking material to the OPC drum (110) to form a marking material or toner image thereon. For ease of reference, "marking material" will be referred to as "toner." It should be understood that any suitable marking material may be used. Once transferred to the OPC drum (110), the toner image is subsequently transferred to a marking material receiving part. Toner remaining on the OPC drum (110) after the toner image has been transferred to the marking material receiving part is removed by the cleaning unit (115). The specific operation of each of these components will be discussed in further detail below.

[0018] The hopper (120) is configured to contain a volume of toner. Further, the toner is contained in such a manner that it may be made readily available for use in printing operations. Accordingly, the toner may be any toner suitable for printing operations. The stirrer (125) is configured to rotate in a counter clockwise direction (CC) to assure that a quantity of toner is provided to the RS roller (130). According to one exemplary embodiment, the RS roller (130) also rotates in a counter clockwise direction (CC) against the developer roller (135) to create a scrubbing action that removes any toner that was not developed onto the developer roller (135) and returns it to the supply. The RS roller ~~(135)~~ (130) may be charged, such that it creates a charge in the toner. Charging the toner increases

the rate with which the toner is developed onto the developer roller (135). As the RS roller (130) rotates, toner is transferred to the developer roller (135). While the rotational directions of the above-mentioned rollers are described as clockwise or counter clockwise, the rollers may independently rotate in any number of directions and still apply the present method.

[0019] Similar to the RS roller (130), the developer roller (135) also rotates in the clockwise direction (C) according to one exemplary embodiment. Simultaneous clockwise rotation of both the developer roller (135) and the RS roller (130) may be facilitated by a small idler roller (not shown) disposed between the RS roller (130) and the developer roller (135). The rotation of the developer roller (135) enables toner to be transported onto the surface of the OPC drum (110) in accordance with the charge states resident thereon. As the developer roller (135) rotates away from contact with the RS roller (130) the toner is doctored or smoothed. Before it is transferred to the developer roller ~~(140)~~ (135), excess toner is removed by the developer blade (140).

[0027] During operation, each of the print cartridges (100-1, 100-2, 100-3, 100-4) forms an image on a transfer belt (250) of the image transfer assembly (220). Each of the color plane ~~plan~~ sub-images or sub-patterns corresponds to a color plane sub-pattern. For example, the K print cartridge (100-1) contains black toner. The image generated by the K print cartridge (100-1) transfers a black color plane sub-image onto the transfer belt (250). Similarly, the image generated by the C print cartridge (100-2) transfers a cyan color plane sub-pattern onto the transfer belt (250), the M print cartridge (100-3) transfers a magenta color plane ~~plan~~ sub-pattern, and the Y print cartridge (100-4) transfer a yellow color plane ~~plan~~ sub-pattern. The image transfer assembly (220) rotates the transfer belt (250) in a

clockwise direction (C). Patterns or images transferred to the transfer belt (250) make their way from the print cartridges (100-1, 100-2, 100-3, 100-4) around the image transfer assembly (220). During a startup operation, prior to the introduction of a print receiving media sheet, the images continue on the transfer belt (250) until they pass the optical sensor (230). The sensor (230) is configured to detect the presence of patterns or images and pass that information on to a controller (not shown). As will be discussed in more detail below, the detection or non-detection of the presence of each of the patterns will allow a controller to determine whether the OPC drums (110-1, 110-2, 110-3, and 110-4) are rotating.

[0028] During a printing operation, the image is transferred from the transfer belt (250) to a media sheet, such as a sheet of paper. The media sheet makes its way through the media path (270). The media sheet is brought to a proper charge state by a media charge roller ~~(280)~~. The image formed on the transfer belt (250) is then transferred to the media sheet. The media sheet advances along the media path (270) through [[a]] <u>the</u> fusing assembly (240). The fusing assembly (240) fuses the image onto the media sheet by melting the toner onto the media sheet. After the media sheet has passed through the fusing assembly (240), the imaging operation is complete and the imaged media sheet is output.

[0030] As will be later explained, each print cartridge (100) imprints four marks on the transfer belt (250) according to one exemplary embodiment. A first set of marks (e.g., tick marks) are printed such that they are adjacent an edge of the transfer belt (250) and are positioned so as to orient their long dimensions orthogonal to the process direction (i.e., direction of transfer belt movement). This first set of marks may be used exclusively as rotation detection marks or they may also serve as a pattern of alignment

marks. The alignment marks, corresponding to each print cartridge, ~~includes~~ include a pair of lines that are positioned along opposed edges of the transfer belt (250) and are oriented at oblique angles to the process direction of transfer belt (250). Accordingly, print cartridges (100-1, 100-2, 100-3, and 100-4) imprint at least four patterns including eight rotation detection marks, which may be used as a first set of alignment marks, and eight additional alignment marks on the transfer belt (250). The presence of each of the rotation detection marks is detected by the optical sensor (230). For color plane registration, sensor circuitry determines the timing between the sensing of the alignment marks of each pair and the sensing of a pair of alignment marks, which are printed by one, print cartridge and serve as reference marks (e.g., the marks from K print cartridge (100-1)). As the sensor circuitry determines the timing between sensing the alignment marks, error values are derived from the mark timing measurements if the sensor circuitry determines differences between (i) expected time intervals between marks and (ii) measured time intervals between marks.

[0036] Turning now to Fig. 4, a detailed view is shown of a pattern of printed rotation detection marks (400-1, 400-2, 400-3 and 400-4). The rotation detection marks (400-1, 400-2, 400-3 and 400-4) may be a series of lines or tick marks. Each of the rotation detection marks (400-1, 400-2, 400-3 and 400-4) corresponds to a print cartridge ~~cartridges~~ (100-1, 100-2, 100-3 and 100-4 respectively). One group of rotation detection marks (400-1, 400-2, 400-3 and 400-4) is disposed on one side of transfer belt (250; Fig. 2) and another group of rotation detection marks is positioned on another side of transfer belt (250; Fig. 2) (only one side is shown in Fig. 4). The rotation detection marks (400-1, 400-2, 400-3 and 400-4) may also be part of a pattern of alignment marks (410) that are used in the color plane registration operation described above.